

Self Reference and Empathy in Trauma Therapy. How the Mirror Neuron System helps us to improve Mindfulness.

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Abstract

The new concept of self-reference is of uttermost importance to understand the effects of empathy, compassion fatigue and vicarious trauma. Mindfulness based meditation techniques nurture self reference thus being a powerful technique in stress management and also in general health care.

In the scientific literature about mirror neurons and empathy the importance of self-reference for post traumatic stress disorders has not been dealt with so far. In a trauma state the differentiating between themselves and the simulation of the state of the other mirrored in the mirror neuron system breaks down and becomes dysfunctional because of an under perfusion of the insula region of the brain. In order to identify and eliminate perpetrator injects you have to restore self-reference.

While doing trauma therapy the simulation of the trauma state of the patient may induce in the therapist a trauma state resulting in blurring the line between myself and simulation. To the strain of the simulation of trauma the therapist has to have a clear and strong self reference. Without that it becomes detrimental to the therapist's health. Because self-reference is a part of the phenomenological self concept that is based on tangible body experiences the self experience process of a soon-to-be trauma therapist about his/her own traumata has to be body-oriented. As the activated trauma state of the patient resonates in the mirror neuron system of the therapist the liveliness of the therapist is mirrored by the patient and can be embodied as a resource state. Furthermore mindful body oriented meditation techniques may help to strengthen, cultivate and stabilize a strong self reference state.

Key words

trauma, mirror neuron system, perpetrator introject, empathy, self reference, attachment, compassion fatigue, vicarious trauma, meditation, mindfulness, spirituality.

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1. Trauma, Mirror Neurones and Perpetrator Injects

Introduction

There are already extended research results about mirror neurons and empathy. (e. g. Bauer, 2005; Rizzolati et al., 2008). Bruce et al. (2010) state, that mindfulness-based practice can be a means to train psychotherapists. Although Dan Siegel (2007; 2014) checks the impact of mindfulness based training on cerebral structure and function. But reviewing the literature about trauma, mirror neurons, self reference, meditation and therapy I found only Lord S A (2013), who dealt with the effect of a „comeditation/ meditative dialogue process“ on „sacred space“ and the „sense of just being“ in the therapeutic situation. Lord mentions mirror neurons, but does not put them in relation to the therapeutic action process and not at all to the self care of the therapist. I did not find any elaboration of the special dynamics of self-reference in behalf of post traumatic stress disorders.

1.1. Trauma, looked upon from a neurobiological viewpoint

Trauma happens when all wise options of action are exhausted. The stress becomes unbearable because of the lack of problem-solving possibilities. All known coping mechanisms no longer work. The information processing is overtaxed. This is why **unbearable** stress occurs. But it is not only the acute stress state that makes a disorder. It is the failure to find way out of this extreme stress state. This renders the information processing dysfunctional in the long run. Understanding this process opens up healing options.

Everybody encounters heavily stressful experiences - often more than once - in life. Injuries as well as psychic harm can cause unbearable stress. The problem-solving capacity is overtaxed. The organism is emotionally so over-stimulated that the affect tolerance is overstretched and an experience of fear and panic is evoked. Wise and functional action is not possible any more (Huber 2005). The experience of what is unbearable is a complex gestalt with very individual components built of

- ◆ The physical and often sole psychic impact on the organism, e. g. an injury of the body or an anticipated injury that is a threat,
- ◆ The individual assessment of this impact,
- ◆ The individual readiness to react,
- ◆ Previous experience with difficult situations (e. g. previous traumata) and
- ◆ The objective as well as subjective coping possibilities.

1.1.1 What constitutes a trauma?

In a traumatic situation all wise and functional action options are exhausted. This causes stress, a very high amount of stress. The sensory overload induced by the extreme stress causes phenomena that resemble an emergency brake. The organism freezes in fright and shock. Numbing and freezing are part of a functional state of our brain that protects it against a damaging overload with stimulation we cannot process because, at the same time, we need to focus on everything that is necessary to survive (detailed presentation in Madert, 2007).

A patient of mine described it in these words: “I functioned like in trance; I performed orders like a machine. My feelings were numb to the extent of anaesthesia. At the same time my complete attention was focused on the permanent threat of danger. Vigilant and strained to the extreme, I watched out to prevent any harm to me.”

The creation of a consistent figure of reality is the result of an active work of our brain. This involves the binding of the different modalities of our senses as well as creating a meaning out of our perceptions. In the condition of extreme stress this binding function is overtaxed. From the viewpoint of normal function this seems like a cut off. But it is a malfunction.

The unity of experience shatters in more or less fragments (dissociation) because of a default in brain function:

Primary dissociation occurs on the neurophysiologic level of sensomotor and endocrine patterns. In shock state some brain regions are so occupied with managing survival that other parts are under-supplied with blood and oxygen. I suppose these are mainly the regions of sensory awareness and the creation of body representation. The material base of the binding function of the cortex is impaired that creates a coherent image of the encountered situation. The brain fails in constructing a consistent experience of “Ego”. The “Ego” remains dissociated in an incomplete primary state of different sensory modalities. The brain is overtaxed with the creation of an integral whole of experience.

A patient reported: “I froze in innermost terror. My last thought was: now I’m dead. Really everything was gone. Nothing existed any more. I know now what means to be in a state of shock: incapable of action holding on without moving, grown stiff and numb.”

Another patient experienced herself as “fallen out of existence”, some other patients as “shot out of orbit”, “excommunicated”, being “an alien”.

For the subjective psyche primary dissociation means that in the shock state the material base of the psyche as emotional and cognitive organ (ego-perspective) is dysfunctional. The ego as an organ of processing experiences of the senses has become dysfunctional because of

dysfunction of its neurophysiologic base. It can neither create a coherent image of the experience nor can it integrate it in the self concept nor can it repress. There is no coherent image to be repressed. The representation of time and space is dysfunctional. The so far coherent representation of time and space shatters into pieces like “a broken Christmas tree ball”, in which the ego was “mirrored”. The sense of self becomes unreal like being in a nightmare. The “felt sense” is impaired. Body sensations and emotions are not felt any longer or associated with the traumatic situation.

The trauma experience will nevertheless be stored as body reminiscence in the basal ganglia system, namely in the basolateral amygdale and the mesolimbic system (Roth & Stüber, 2014, p 372) This storing is done in the form of special habitual body posture that reflects the reminiscences of the freezing response (Mosetter et al. 2005). In particular, injuries and violence are imprinted deeply like a stamp into body posture, motor system and vegetative-emotional mood. This often lets traumatized people appear as impersonal, emotion- and soulless, unreal, sometimes transcendent. Such content of the **implicit memory** is unconscious and not accessible to a verbal discourse. There is not even a secondary verbalizable mental representation that could be repressed. The changed state of a traumatized patient may only be revealed to an empathic observer via the mirror neuron system.

Primary dissociation is therefore in this stage not a defence mechanism on a higher psychic level but loss of neuropsychological function. In cases of very early trauma e. g. birth trauma there is not even an ego that can repress. That means: there is no psychic content present that can be repressed in the strict sense of mental images, verbalizable cognitions or explicit narratable memories. Nevertheless, even in the first two years after birth there is an impact of the trauma, the traumatic experience is indeed stored but only in the implicit somatic memory, not in the explicit “psychic” memory, because this kind of “psyche” was not yet in existence and could not develop because of the malfunction of the brain.

In the case of a trauma-state triggered later on in life the brain goes in a similar state of malfunction. Many parts of the cortex are once more so badly supplied with blood that an important function of the cortex, the conscious awareness, is impaired. At least for patients who are in a triggered trauma state this under supply can be proved by fMRT (Markowitsch et al. 1998, 2003; Kapfhammer 2002).

Secondary dissociation is a defence mechanism. The attention is drawn back from experiencing trauma and the related real body sensations and emotions and directed to more bearable but limited realms of perception. The awareness escapes to another “space of consciousness”, literally a “spacing-out”. It “dreams itself away”, it is “beamed into nirvana”

as related by patients. Thomas Metzinger describes very impressively in his book „Der Ego-Tunnel“ (2009) how the “phenomenological self concept” that is the identity-building conscious self image of the own body splits itself off from concrete body experience, floating under the ceiling and watching from a secure distance what is happening to the “material” body in outer reality.

1.1.2. Trauma by neglect and shock trauma

We differentiate two types of trauma: trauma by neglect and trauma caused by a shocking experience. They both are poles of a whole range. Neglect can also reach a life threatening state:

A patient was the unwanted child of an overtaxed mother during war. The mother left her alone with the mosquitoes in the summer heat, in winter out in the freezing cold, freezing in cold bath water. In her 182nd session the patient describes: “the left side of my body contracts with murderous rage about her. I prefer to be half dead and dying than to admit to myself that I need her.” Here we can get a sense of the terrifying dread and panic of the lonesome child facing a nameless void and threat of dying. The rage of this patient is the helpless rest of struggle for survival. This helpless child would have exhausted herself in a senseless fight for care and attention if there had not been the emergency cut off by the depressive collapse and seizure.

Peter Levine explains: “When a human being is left alone in a cold room this is quite surely catastrophic for a baby, alarming for a crawler, stressful for a sub-teenager and to some extent uncomfortable to a teenager or an adult.” (Levine, 1998, p 43) The amount of stress and therefore the likelihood of traumatization have to do mainly with the maturity of the brain, the coping possibilities and the degree of being at the mercy of others.

Trauma always has to do with the existential threat that the ego ceases to exist due to physical and/or psychic annihilation. In a traumatic situation the possible annihilation is so strongly present that there is no way to avoid it. The physical individual, so to speak the “animal” within, has possibilities to answer the threat with emergency actions. These are mainly phylogenetically preformed at the lower limbic level (Roth & Stueber, 2014, p 371) often called the “reptile brain”. Most of them we have in common with all higher animals e. g. fight-flight-impulses with activation of the stress axis (hypothalamic-pituitary-adrenocortical axis HPA), freezing response, shock-reaction, dorso vagal emergency shut down. The organism collapses or freezes in fright and shock. All this helps this singular organism to survive, in case of a human to survive as a singular ego.

Trauma alters the feed back loop of the stress response system of which the HPA-axis is an important part. It is the normal function of the stress induced cortisol release to throttle down the immediate stress response (CRF, catecholamines, vegetative nervous system) and prevent it from overshooting. Given a PTSD the stress systems shows significant changes. Although the cortisol releasing factor (CRF) concentration is high, the cortisol level in urine and plasma is lowered. The cortisol release in the morning is lowered as well as the cortisol answer when confronting stress (Roth & Stueber, 2014, S. 271). When the cortisol release is lowered because of preceding traumatic experiences, the cortisol can not exercise its function of throttling down the stress response and the immediate response is overshooting. Because of this prolonged physiological hyperarousal the risk for PTSD is heightened. (Yehuda et al. 2010).

Just as depressive disorders the development of a PTSD seems to be tied to a lowered neuro genesis. A trauma related hypo function of the cortisol system is usually preceded by a period of hyper function Abuse and neglect in childhood effect in a cortisol hyper function If the state of extreme stress is not dissolved in good time, the hyperarousal is not cut down glucocorticoid receptors in the hypothalamus are destroyed (Bering et al., 2005; Gehde et al 1998; Kapfhammer, 2002; detailed presentation in Madert, 2007). According to Trickett et al. (2010) in the course of time a cortisol hypo function develops. On a psychic level this correlated to a resignation of the child. The child gives in and quits resistance. Later on chronic stress also effects in a primary hyper function of cortisol In the state of exhaustion this turns to a hypo function of cortisol (Roth & Stueber, 2014, p 272).

A hyper function of the amygdale at rest as well as answering trauma related stimuli seems to respond in augmented anxiousness as well as persistence and intensity of traumatic memories. The activity of the limbic ventromedial pre frontal cortex is generally diminished (Roth & Stueber, 2014, p 270). The organism remains in a constant state of hyperarousal but perceives it as “normal” because the background feeling (Damasio, 1997), the bodily reference for the phenomenological self concept (Metzinger, 2009) is changed accordingly.

A classical example is in attachment research: Mary Ainsworth (Ainsworth in Strauss et al. 2002) describes insecure attached infants in the “strange-situation-test”. In this experimental setting the mother leaves her one year old child playing with a strange person and goes out of the room. Healthy, secure attached infants go into protest, cry for their mother and so try actively to keep contact with their mother. Insecure attached infants act “easy-to-handle” and “normal”: They continue to play as if nothing happened apparently more or less unmoved. When their mother returns they pretend nothing happened. But when we measure

physiological stress parameters these children show high stress levels (Spangler et al., 1993; Ahnert et al., 2004; Luijk et al., 2010; Center on the Developing Child at Harvard University, 2012). The system of these children is in high stress even when they do not show it in their outer behavior and they act as if separation does not matter. Nevertheless, background feeling and unconscious reaction readiness have changed e. g. their attachment behavior now expressing pseudo autonomy: “I do not need anybody!”

In the traumatic condition the arousal stays high. The interpreting psyche looks around like a “radar” in the everyday situations for “good reasons” why heightened attention and mistrust are justified. The result is phobia or avoidant behavior. Or the conscious psyche dissociates and ignores possible dangers because the disturbance would be too great as a result of the then triggered traumatic memories.

The traumatic condition is primarily a somatic and neuropsychological stress reaction that can go so far as fainting. The psychic experience of this is powerlessness, impotence in the sense of helplessness, being at the mercy of others, loss of control and of self empowerment. The self effectiveness and the sense of safety, self-confidence, orientation and competence in managing life are lost.

1.1.3 Overcoming trauma or post traumatic disorders.

A shocking experience becomes a trauma only if there is emotional neglect that perpetuates hyperarousal because of lack of resistance to it. Rest and security after extreme stress resolve the immediate reaction of panic and shock, the arousal is discharged in catharsis and the gestalt of the experience is integrated in the personality and the self concept. A patient reported: “What saved me was compassion, the empathy of others and compassion with myself.”

I cite another patient: “I told it to my mother, she reacted totally without sympathy: < Come on! That’s not that bad! Shit happens! You as a woman have to take it! >. But my body said: that’s not the way out! I would have needed someone to hug me and explain to me with sympathy what happened.”

Without sympathy the primary dissociation stays unsolved and the hyperarousal, the numbing and the freezing is stored forever in an implicit neuronal network that is not accessible to words. A chronic traumatic complex comes into being. Now the original traumatic state can be triggered by means of a classical conditioning. Stimuli that resemble the original traumatic situation effect the same “emergency actions”. Such a **trauma state** of emotional

hyperarousal included is experienced by the patient as if he is in the traumatic situation again right now.

There are many patients with dissociation consolidated in the organisation of the psychic personality and interaction structure, e. g. **borderline-personality organisation**. Then there is not only this one ego with consistent behavior and thinking that perceives the other as homogenous person opposite. In consequence the attachment style is **chaotic-disorganized**.

Mostly a traumatized person tries to **compensate** a trauma. The traumatic complex built from dissociated pieces of memory, hyperarousal, freezing and numbing is held together by a cover of rigid body posture, avoiding behavior and defensive cognition about the dangerous state of the world and how to cope with it.

Rigidly clinging on the person sticks to relationships and materiel possessions that promise alleged security. Alternatively relationships are avoided because of fear or relationships stay superficial and can easily be exchanged. For the description of the trauma compensation I prefer the body psychotherapeutic term “character armour” of Wilhelm Reich (Reich, 1933). That is because many patients feel like knights in protective armour. Character armour, control implicates narrowness of awareness, focus of awareness on threat and survival. A patient quoted: “I once ended up being totally calm, I didn’t perceive any fear any longer, even no feeling at all. I was prepared and armed for everything; I managed to have a skin like Siegfried the Nibelung that I couldn’t get rid of. Nothing could harm me any longer, only my ratio I could rely on.” And beyond it: „I noticed that all these people who had experienced merciless murdering, raping and looting told their story. But the terror was covered with silence. Maybe, like me, they feared a breaking of the dam that could sweep away all survival constructions. I also had to watch out that my memories would not revive too intensively in order to keep control over them.”

Another patient reported: “People walked around in the streets of Munich like zombies, totally spaced out. Millions of traumatized after the world war. All these frozen parents. The neglected children can not bear to be surrounded by this. It is madness to give in to this! On the other side there had been some who did not freeze. There is always this other might. The bright. Perhaps this can effect healing.”

1.2 Mirror neuron system and self reference under extreme stress

1.2.1. Loss of relatedness

Many traumata are made by other humans, e. g. by sexualized violence, torture, rape or physical assault. The threat can go to the extreme of physical annihilation (Huber, 2005). Such

an experience brings forth a deep feeling of insecurity or **shock of the primary confidence** and a **negative relationship experience** of deep impact. This negative experience is internalized. Quality and connectedness to other humans change toward being threatened, mistrust and being detached.

Violence i. e. sexualized violence implicates: breaking through the subject/object barrier. This causes **oversensitivity**. A patient formulated: “permanently extend the antennas, permanently feel into the intentions of the others and anticipate if something may happen. This means: total openness. This leads to a break down.”

Empathy and trust can only be understood taking into account relationship experiences. To exemplify this we need a turn to the **mirror neuron system**, also called “Dalai Lama Neurons”.

The brain represents the individual person by programs for action sequences, for body sensations and emotional feelings. In every case in which programs for action sequences and related sensations are stored mirror neurons are involved. They fire when we execute an action. They fire when we prepare an action. They fire when we plan an action. The same neurons even fire when we watch how another person executes the same action. They fire when we sense the body sensations belonging to a given situation. They even fire when we witness some other person being in the given situation. They fire when we feel emotions like joy or fear, but also when we pay attention to another person experiencing such emotions (Bauer, 2005). There is an internal real time copy built up of the perceived action as if the observer himself is executing the action. It is like an internal action simulator that is preparing but not necessary executing the action in extenso. The motor neurons are nevertheless put in action subliminally. The tension of the muscles is heightened in advance. The activation can be measured encephalographically and myographically (Rizzolati et. al., 1999; Clauer, 2003, Bauer, 2005; Gallese, 2012). The copy is made automatically, intuitively, mostly subliminally and is not accessible to voluntary suppression. Watching the action executed by another person activates or maybe creates for the first time the neuronal activation pattern or program necessary to perform the observed action in persona, beside this all related sensations and emotions /spontaneous inner simulation, model learning). Sounds typical for an action, even talking about an action can have the same effect that is activation of the mirror neuron complexes. Mirror neurons react in resonance even if the stimuli to which they react are not perceived with conscious attention or are below the threshold of cortical perception (subliminal stimulated simulation).

Mirror neurons are the neurological base for building intuitive conceptions about emotions and intentions of other humans. A bunch of neuronal network is contributing to the concept the brain constructs about another person and oneself. Modern imaging methods show up (perfusion and oxygen saturation) activities in the lower premotor cortex (intentions of action; action planning), in the lower parietal cortex (body sensations and sensation-based self concept), in the insula (mapping of body state), in the amygdale (fear) and the gyrus cinguli (basis background feeling, emotional ego-feeling) (Lamm et al., 2010). Working together, these units create representations of others and the one self (Bauer, 2005). There are also mirror neurons of the action planning premotor system in the broca area that is in charge of verbal productions. Speech roots in actions and imaginative anticipation of action possibilities including the associated sensory experiences of the biological actors involved.

As I pointed, out the cortex of a person in a trauma state that is in a state of extreme stress is partially poorly supplied with blood, especially the left cortex. This effects among others verbal deficiencies. Within the mirror neuron system the differentiation between attributing sensory input to myself in contrast to an empathetic simulation requires a well functioning cortex with a good blood supply. In correspondence with this the differentiation breaks down under extreme stress because of neuronal malfunction. The phenomenal and emotional state of others stays unfiltered, not kept on conscious distance and controls without differentiating interception the action of people in extreme stress. A well know example is mass panicking and mass flight in case of fire, bomb attack or mass accidents.

The perceiving interpretation of emotions and feelings of others is created by reconstructing signs of body language of the others in our own system by creating a simulation in our mirror system. We have this ability in common with other humans (and at least some higher mammals). Imminent and direct ideas and concepts about what is going on in the body and mind of the other is the neuronal base for the capability to build up “theory of mind” about one’s mind. The system of the mirror neurons in fact establishes an **archetypical neuronal format** beyond individuality that creates **a common inter relational space of meaning** (Bauer, 2005). This super individual neuronal format gives the base for an on the whole calculable and predictable world and a sense of primary trust and feeling understood. Exclusion out of this common space of shared understanding has an effect like excommunication and can cause illness up to death by curse (“voodoo death”) (Bokpe, 2002; Schmid, 2000).

1.2.2 The coming into being of a perpetrator introject

A victim of violence through a fellow human goes into despair about his incapability to present himself to the perpetrator as a vulnerable, feeling human being. The perpetrator acts as if the victim would not be a socially related co being but an inanimate thing. Or he is drawing sadistic pleasure out of dominating the victim and his anguish. The perpetrator refuses to go into resonance via his mirror neuron system. A perpetrator is empathically empty. A fundamental human quality is missing. He is not sharing with his victim the intuitive base of fellow human understanding.

This lack of understanding is so inconceivable to a child, so beyond all his relationship patterns, so frightening, rattling and paralysing that the urge is overwhelming to fill this void in order to survive as social being. The victim identifies with the aggressor and his view of the world. To use psychoanalytic terms this effects in the implantation of a negative self object in the form of a perpetrator introject. This means that the victim takes over in an unreflected and unconscious way attitudes, opinions, intentions and cognitions of the perpetrator about him, the victim and the (traumatic) situation. The victim gets emotionally tuned or “infected” via empathy (emotional contagion) by the mood of the perpetrator. As the victim, his mirror neuron system simulates pre consciously or often totally unconsciously a copy within the own body system about what the perpetrator feels, how he moves, what his intentions are, what will be his actions in the next few minutes. By this the victim gets “intuitively” a sense of the line of the action gestalt that could develop in the dangerous situation. Because of the high emotional turmoil the perpetrator introject is stored in the mirror neuron network as being of survival importance.

This is exemplified by a short vignette of three treatment sessions

I report on an about fifty year's old woman, that had a compulsive father with hypersensitivity to noise. This father, who was quick to anger with violence towards his two sons, had been at war in the age of seventeen, then imprisoned and nearly starved to death. He laboured under nightmares and died after a horrible year of suffering by a nauseously smelling jaw cancer, when the patient was sixteen years old. The marriage of the patient with two daughters broke after the death by cancer of the mother-in-law. During two years of divorce battle the husband made a lot of verbal attacks, lies, imputations and defamations and the father-in-law. There were four court proceedings about alimony and car: “a terrible war of nerves!”

The patient starts the 220th Session with referring a dream: “dispute with my younger daughter. It was about her father, my ex-husband: how heavy it was for me at these times. I destroyed my daughter's image about her father. I screamed out my anger. My rage calmed down. I apologized about having screamed so much.”

Associations of the patient about that: “There is something internalized from the ex-husband. It is also me that got some part of the burden.” The patient imaginatively takes over the role of the ex-husband: “this burden is crushingly awful!” Being out of the role and being herself again: “I can’t help feeling sorry for this man. The kids want to help him, but are not able to do so, they shilly-shally around ... I tried to help my father too, wanting to ease off his war traumata, his shock, his cancer illness, when I was sixteen.”

The patient retrieves imaginatively her sixteen years old self out of the sickroom of the father saying to her: “I see your suffering and your hard fate”. She states to her here-and-now children: “There is darkness, evil, war, sickness, violence. That’s reality!” And to the father and the ex-husband she says: “I couldn’t help you. It is your stress I have taken, out of love. I can’t stand our misery, I can’t be totally helpless and so I detach myself completely from my feeling.”

The patient commentates: “If the father, the ex-husband stays with this destructive black energy all for himself, it destroys him: the father got cancer. Is this the expression of this energy? And the ex-husband destroys himself too: he smokes, he drinks a lot of alcohol, he has arthritis by an autoimmune disease. It is by the violence and blows of the father, the violence by words and court proceedings of the ex-husband that their rage intruded me. Where to put the rage? Their destructiveness triggers destructive rage over and over again. The children didn’t count for them. When I shoulder some of the destructive rage of my father, of my ex-husband, it may be cushioned. And then it is not that dangerous for me and my children.”

This complex is processed by EMDR (Shapiro, 1995). By this a change occurs: “a feeling as if this rage steps a little bit forward, away from me, and it’s not any longer totally Me ... a genuine body feeling arises.” The patient now sees herself being with her children: “That touches my heart. I see that this is vital. It is nice to have children that are different: vibrant and vivacious.”

After this session the patient at first felt “totally good”. The belly aches were nearly gone. But then, the next day, everything bugged, because the daughter got an exacerbation of neurodermitis and was a nervous wreck. Because this may be an indication of an activation of the traumatic complex, we focus on the stress situation being at court with the ex-husband (Subjective Units of Distress SUD: 80%) and processed by EMDR. Quickly the patient reports: “It is the first time that I understand was is a perpetrator introject. That I mirror this alien rage, this black energy. What I am beside that has not gone at all. Beside the black

energy I sense something else, something calm, bright, safe, sad. Beforehand it was as if the back was occupied me completely.”

The patient is once more looking upon the sixteen year old girl part from an adult state talking to her imaginatively: “It was right to take over these feelings in order to assess the violence of that time and also in order not to stay alone. One enters this energy when one badly wants to be close to people (to the father, the ex-husband). You do not need to mirror them any more! It’s over! Father is dead; the ex-husband is gone. The threat has come to an end. You can quit the state of being alarmed. Feeling threatened is also a way of protect oneself: striking back or shut down, freeze. Flight was not possible. Simple-mindedness would also be dangerous. Because without the possibility to feel the destructiveness I can not evaluate the danger if necessary. The important thing is, that it does not belong to the here and now ... It is good to feel that. Then I can face and handle it so it would get its proper place and does not assault me surprisingly.”

The beginning of the next session is superficially about the feeling of “lacking space” at home and about having the right of having a chamber of her own. Quickly the feeling of threat behind this becomes apparent and the childhood mode: “bolt to my chamber”. Focusing on this the atmosphere at the dining table in the family of origin shows up, when father shouted at the elder brother and the patient being a child froze. The elder brother collapsed, the younger brother thrummed nervously with his knuckles, mother blubbered. Now the patient can imaginatively oppose: “Stop it!” and to the others: „That is because of the war. Each father coming home from war is like this. But war is over now!“ And to sixteen years old part of her: „You don’t need to scam any more!” In the imagination the parents look to the (grown up standing) patient as if they were helpless children waking up from being frozen and then weep as if they join hands expressing: “We are so sorry, it is the war, all that misery. War has broken us.” This takes the pressure off the children.

To the sixteen years old part the patient says: “You don’t need to be afraid. You can say if someone is talking drivel and nasty. There is space for everybody. It is totally o. k. if you say: ‚stop!’ And in case father doesn’t stop, he is the one who is wrong!”

The mirror neuron system is of enormous importance for all social animals because it helps to get “knowledge” about what is probably going on in the other group members. It enables synchronization, social coherence and learning from each other.

On the first sight the existence of something like a perpetrator introject may be surprising. It is not only a bad side effect of an overtaxed mirror neuron system that can no longer

differentiate between simulation and self. The survival benefit becomes obvious at closer sight: The better the - mostly unconscious - empathetic fitting into the intentions of the perpetrator the bigger the chance for the victim for defusing the dangerous situation by appropriate action and staying alive even if it is accompanied by complete submission. This submission is lightened when the victim does not experience his maltreated body as himself, but as if it were another person who is subjected to something terrible. This dissociation is part of the breakdown of self reference under extreme stress. This mechanism of “Ego-loss” sometimes known as part of the “Stockholm syndrome” is often found in case of sexualized violence, hostage drama and torture. The submission is especially effective when the conscious self of the victim by lack of self reference reconciles with the intentions and beliefs of the perpetrator and misbelieves: “It was me that liked it this way!” The victim then gives up parts of his identity in consequence of the “loss of ego”. In consequence this works like the (individual) soul being murdered (Wirtz. 1989).

People with experience of severe violence with integrity destruction often experience intuitive impulses to murder themselves. Experience of violence seems to activate unconsciously an action program that, in the sense of the mirror neuron, system completes an existing sequence. The mirror neuron system is projecting intuitively to the end some action that in the suffered experience was not carried out until completion. The destruction of the person by the perpetrator that goes as far as even self murder executed as suicide (Bauer, 2005).

An example: The biography of a patient: Elke and her one year older brother were beaten up on the bare bottom by their mother using a carpet beater. The mother did it out of proportion and without any mercy as a result of a minimal offence. Elke managed to build up a seemingly abstruse, nevertheless archetypically preformed explanation: She identified with the drone figure of a science fiction novel where a queen is maintaining a court of drones she keeps in control like robots by nano chips implanted under the skin. She can do with them whatever she likes.

In relationships Elke was greatly impaired by masochistic submissive behavior. This was augmented by being raped by two men, when she was twelve. Elke pointed out: “One put his hands over my mouth. I nearly suffocated because of polyps. Both were under stress, were panicking. I took on their panic. This is how I am in panic today. Unconsciously I made a deal with these rapists: I let you do to me what you like as long as you let me survive! Then little Elke passed out. I sold my soul so that the soul remains in the body.” Indeed Elke had suicidal impulses.

There are devastating consequences on relationship abilities by a perpetrator introject: the traumatising relationship experience is mirrored within the victim via minimal empathic imitations (simulations) of posture and action impulses of the perpetrator. In psychoanalytical terms: the state of the perpetrator and the relational experience is “introjected”, that is to say the body remembers in a condition of stress these patterns, but the psychic allocation is not built up because of the emotional numbing in shock state. Or the allocation is dissociated and without emotional attribution. The psyche is looking for explanations for the repeated reactivated trauma body state that can lead to phobic disturbances and even the projection of the unconscious internalized perpetrator-victim-relationship pattern on everyday relationships. Without noticing, the victim is behaving just as reserved, emotionally cold and sometimes even cruel as the perpetrator once acted towards him.

Mainly with trauma patients without treatment the trauma has become a part of the personal identity. They define themselves as traumatized, as victims of e. g. sexualized violence. This brings along a habitual focussing on own deficits that the trauma is responsible for. This focus enhances the traumatic background feeling. It may even trigger repeated traumatic experiencing and ongoing re traumatizing so far as to kindle the corresponding neuronal network.

The neurobiological base of the building of a perpetrator inject is complex but can be put in comprehension imagining eight personality parts or “sub-persons” involved in a trauma:

1. The physical body of the **victim** that encounters violence, often with physical injury
2. Body sensations, impulses, intentions of action as fight, flight or freeze the **victim** that form a body referred map about the act of violence in form of memory traces in the mirror neuron system in the **right** half of the brain
3. A similar map of body memory that however is established in the **left** half of the brain related to the phenomenological self concept: “It is **me** experiencing this”
4. A map produced by the mirror neuron system that is a simulation within the **victim** gained by empathy with the perpetrator about **what the perpetrator may** feel and **intend**: “What is he/she planning? What does he/she want from me?”
5. The physical body of the **perpetrator** executing violence up to physical annihilation
6. Body sensations, impulses, intentions of action sensomotor reflections of the **perpetrator** including his/her motives, repetitive patterns and acting out of former actions done to him/her. This is often unconscious to the perpetrator.
7. Conscious awareness and reflection of the **perpetrator** about what he/she does and intends: “That is what I am doing and intending.”

8. By means of the mirror neuron system **the empathy of the perpetrator** into the victim's **state**: „How the victim of mine feels about what I am doing to him/her? What do I cause within my victim?“

The victim goes into despair because there is no empathic resonance for his/her state within the empathic part of the perpetrator (sub-person **8**). Or this empathy is twisted and misused in such a perverse and sadistic way that the victim does not feel acknowledged as a fellow human being.

It is striking to conceptualise two personality parts within the victim neurobiologically allocated in the two brain hemispheres responsible for the self awareness and therefore for the phenomenological self concept. (sub-person **2** and **3**). From a neurobiological point of view both personality parts are based on the achievements of the mirror neuron system. There is a separation is the finding of John Decety (Decety et al., 2003): only when **the Myself as acting person** (sub-person **3**) is planning an action, intending and maybe putting into action these intentions or actions are attributed to the Myself, the own person. Only then the mirror neuron network of the **left hemisphere becomes active**. It is this activation that the self-awareness relies on when deciding about this is **myself** or someone else. The own body is perceived with the right hemisphere although but the attribution of this perception to myself “This is **me** acting, this is **my** body” is a performance of the **left hemisphere**. Feelings and concepts about **other persons** and typical human behaviour root in representations built up in the **right hemisphere**. It seems to be a memory storage of the general representation of human beings, as well as for the own body looked upon from “outside” (sub person **2**). In case of breakdown of the **right** lower parietal cortex body related concepts can not be built any more (Bauer, 2005).

Here neurobiological findings in trauma victims and their self perception correspond: When there is a situation not to be anticipated and so strange that no intuition is helpful a massive biological stress reaction is induced coming up with massive feelings of fear. Fear, tension and stress can reduce the signal rate of the mirror neurons to a great extent (Loren et al. 2015).

2. Trauma therapy, mirror neurons and the healing relationship

The process of recovering from trauma

Many traumatized patients are “adrenaline junkies”. Drama, even the reliving of traumatic experiences, provides stimulation, and in an odd way it reminds the shocked patient that he/she is alive. The traumatised patient tries to process these traumatic events. Even when taking action or re-enacting his/her trauma-drama, he/she doesn’t usually feel the whole experience (tunnel view). He/she wants to understand it and to heal it, talk about it, reliving it over and over. But that only continues to validate the very limited nature of the traumatic experience, making it even more locked in. This repetitive mode is often stabilizing the secondary trauma compensation or character armour, that results in an identity of being traumatized or being a victim.

Recovering is achieved by integrating. Integration requires certain conditional circumstances. Recovery is determined by restoring the traumatic experiencing in a new frame of reference. The so long isolated trauma complex is re framed with safety, competence for problem solving, self efficacy resources and loving care. In doing so it is of outstanding importance that the new frame is not only stored and established by imagination and cognition in the narrative explicit memory system but also in the implicit memory system by real experience on a vegetative and sensomotor level. The previous conditioning is to come up in the new condition of bearable “green” eustress.

2.1. Trauma therapeutic technique

We already know techniques of trauma related body psychotherapy or of eye movement desensitization and reprocessing EMDR (Shapiro, 1999) from neurological rehabilitation. This is not surprising because a post traumatic stress disorder is a functional and even partly-organic brain dysfunction.

In trauma therapy empathy is essential. It is the most important therapeutic agent. Active trauma therapeutic techniques within this frame of empathy mediate necessary but not sufficient conditions for trauma cure. In this place I just want to point out the most important techniques that showed up for me in practice to be fundamental, at least very helpful and accelerating the recovering process:

- ♦ Stability and safeness
- ♦ Activation of resources
- ♦ Confrontation of unresolved and/or character forming experiences
- ♦ Addressing five **basic** levels:

B behavior impulses

A affects

S bodily **sensations**, **sensing** the body

I **imagining** the traumatic situation

C self related **cognition**

- ♦ Double focus on and balancing between dysfunctional trauma state and resource state
- ♦ Rhythmic sensor-motor stimulation
- ♦ Working in an eustress state (green stress “traffic light”); if necessary the mindful therapist takes over the impaired stress management of the patient.
- ♦ Avoiding states of dissociation
- ♦ Analysis of the character armour and the secondary trauma compensation
- ♦ Analysis of the secondary benefits of being ill and of the identification with being a victim of violence

(detailed description in Madert 2007 and www.Madert.de/downloads)

For many therapists trained in psychoanalysis, using free association active trauma therapeutic techniques and being present in an empathic contact seem to be a paradox. Indeed trauma therapy requires an active technique. The brain is stimulated actively, the patient is prevented actively from dissociating, and when needed, the stress management is taken over by the therapist for the sake of the overstressed patient. The traumatic complex as well as helpful resources are searched for actively and in a guided manner, connections are built actively, and avoiding is confronted. Nobody exposes himself voluntarily to the horrible feelings forming the trauma in those days. “Free association” with endless looping of feeling and thinking around the traumatic complex, “free association” confirming and enhancing the character defence system, “free association” for ongoing stabilising and self confirming the personal myth (C. G. Jung in Jaffé, 1961) is not only counterproductive because it does not change the biological target maladjustment of the stress system but involves the danger of retraumatization by slipping into an unbraked trauma state and the corresponding state of extreme stress without solution.

The paradox is resolved looking upon the levels of intervention: The therapist provides a safe environment, a space for positive brain activation, orientation, stress management, control, catharsis, in especially a safe space of contact and relatedness the trauma is confronted within under conditions of “green” eustress. Within this space the therapist is present in a supporting way and permits the patient to allow whatever wants to come into consciousness, in especially unbearable feelings of powerlessness and helplessness. This is the “container-function” of the therapist. Within this container nothing has to happen or has to be achieved. I remember

several sessions of a paralysing helplessness; a feeling of being overwhelmed with no way out took hold of me. And the patient liked the contact but would not go “deeper” into the material. He did not pick up suggestions, “nothing went on”. We stuck. My therapeutic ego knew: it was not a matter of my therapeutic competence, this was not just gone. I consoled myself with the acceptance that not every session has to be “successful”. I knew: Helplessness belongs to the traumatic complex. I just sustained my helplessness. The patient went away with some relief but without “solution”. In the next session he said thanks for the beneficial last session. It gave so much to him that he did not stay alone with his feelings of “nothing goes” but met understanding and support. This “nothing goes” is often met in trauma therapy, in many confrontation sequences going on for several minutes. Then the question arises whether the patient needs more support for his processing by mobilization and stimulating his brain function, whether he/she needs more access to his/her liveliness by doing some character analytical work about his/her defence, whether he needs more physical hold to enhance his/her feeling safe. Or is the patient just in contact with his/her process that is confronting his helplessness as a crucial part of the trauma complex? Besides direct questions to the patient the crucial hints come from the process quality and the psychophysical state of the patient and how it is mirrored in the mirror neuron system of the therapist by simulation.

2.2 What we can learn from other cultures

It is striking how many eastern body-related meditation techniques show up in western trauma therapy in disguise with other names. In these eastern systems there is a widespread concept elaborated in the west only as bioenergetics according to Wilhelm Reich: it is the concept of life energy *chi* or *prana*. All meditation systems I know agree that there has to be at first purification. The **energy channels** called *nadis* or meridians have to be purified, then a purification and activation of the **energy centres** called *chakras* has to take place.

The purification from trauma is done in the concrete form of mindful body exercises. Trauma therapy can be looked upon as purification of shock blockades although. Mindfulness as an essential of meditation is so up to date today that it is sold in behavioural therapy as special therapy method labelling it “mindfulness” e. g. in Dialectic-Behavioral-Therapy DBT (see below) or in Mindfulness Based Stress Reduction MBSR.

According the neurobiologist Gerald Hüther, primarily sensing the own body builds up structure in the brain during the early stages of development in the uterus and in infancy. Thinking does not matter. Only as a result of the ability to think symbolically ideas, concepts and persuasions of the child gain structuring power. Ideas, concepts and persuasions do not

end in themselves but serve to stabilize what the person attributes to his identity. They serve to stabilize the ego complex: When I stop thinking everything I have done to stabilize my own idea of identity automatically dissolves. These parts of my identity remain that had not only be supported and stabilized by thinking. These are all experiences made with the body and in direct interaction with other people and the outer world during my development so far (Hüther 2002; Hüther et al., 2009).

It is always surprising how much space free of ego conceptions opens up when the body perception is just noticed and left without valuation. Especially in the micro analysis of pure perceptions, this alters whole belief systems. Pain becomes muscle tension; arousal becomes a hint at possible danger without outer reason. The cortex is busy with itself, with its own scenes coming into consciousness and this fact is mindfully realized.

2.3 Empathy being an essential agent in therapy

Basing on his background feeling a human being in a shock state will map himself accurately but totally unconsciously as frozen and wooden. He will not know about this because it belongs to his unconscious phenomenological self concept. This basic state is taken for granted to be the every day background of being in this world. This is how he is behaving, what he is projecting non-verbally to other people, this is how other people will perceive him “intuitively” by simulation in their mirror neuron system (Bauer, 2005). The relational experience absolutely necessary for a traumatized patient to change this concept is the contact mirrored in the flesh with living empathic human fellows.

By empathic folding-in of both systems (“consensual state” citing Gerhard Roth, 2001) while being held bodily (concrete holding function) the overexcited hyper aroused System of the patient seems to tune in to the relaxed psychophysical pattern of a calming person. By this mutual relatedness and consensus the stress system of the patient is tuned, thus creating a new target. A new background feeling is established (Petzold, 2000a; 2000b, Madert, 2003b). The dysfunctional arousal preset so far is overwritten with new experiences (“correcting emotional experiences” see Strauss, 2006). The mirror neuron system, being the neurobiological base for mutual body resonance and empathy, is of crucial importance for this shared inter subjective space. The therapist as well as the patient focuses on the physical and emotional state of the patient. Dissolving the shock state is a condition sine qua non for resolving the splitting, the reintegration of the dissociated body sensing, emotions, cognitions and mental representations. The primary objective of therapy is physiological: Dissolving the chronic shock state. The healing process starts with the “truth of the body” (Levine, 1998). The body

keeps the score (Van der Kolk, 2015). And the body knows how to unwind out of the shock rigidity in order to discharge the energy so far bound. Empathic resonance of a fellow human helps a traumatized patient to get out of the shock freeze. Besides the absolutely necessary outer security empathy creates the security that is mediated by a relational frame. Because so many trauma related memory data is stored in the implicit memory on the level of movement patterns and background feeling, empathy is transmitted to traumatized people via touch and joint mirroring action (see Madert, 2003b).

On the level of neurohormones the oxytocin system plays a crucial part in anchoring of these experiences of being understood. Oxytocin is released by loving touch, but also by loving eye contact and becalming and comforting voice sound. Oxytocin is often spoken of as the “attachment hormone”. Oxytocin facilitates pro social behaviour, relatedness, empathy, trust and sensitivity to emotional signals (Roth & Stueber, 2014, 125). Infants answer to maternal care with heightened oxytocin expression as well as diminished maternal care reduces the function of the oxytocin system (Winslow et al., 2003). When experiencing positive social interaction oxytocin is released into the cerebral liquor and thus effects on the oxytocin receptors of the amygdale, anterior cingular cortex, basal ganglia, substantia nigra and basal frontal cortex. Also oxytocin producing cells of the hypothalamus reach out directly with their axons to limbic areas thus influencing emotion and behaviour (Knobloch et al, 2012). Oxytocin inhibits the stress system and activates the parasympathetic nervous system. Oxytocin release and serotonin release amplify each other. Serotonin takes influence on a lot of psychic functions as it is fear, anxiety, memory, sleep and stress modulation. Lack of serotonin comes along with panic and augmented aggressive impulsiveness. Attachment processes are amplified by oxytocin and vasopressin release. Doing this vasopressin is more involved in the consolidation of attachment memories. All mental operations finally go back to experiences we made as **acting bodily creatures** (Bauer, 2005). Mainly in treating pre verbal traumata the stimulation of the attachment system by bodily enacted sensomotor stimulation is crucial.

The therapist goes in empathic resonance with the trauma tinged state of the patient by tuning in to this in joint attention. This gives the patient the feeling of being understood. His oxytocin system is stimulated. The stress level drops.

It is a matter of readiness of the therapist to allow consciously the resonating of the patient’s trauma within his own mirror neuron system and not refusing or depreciating. This is not a matter of self revelation of the therapist but authenticity and honesty in the sense of Carl Rogers. It means not to fuse with this state of the patient but mentalize and verbalize it with

appropriate words so the patient feels understood. At the same time the therapist has to keep his separate ego stable. To commit as a therapist means to go in resonance without reservation, to let develop and stand the simulation and at the same time realizing: I may have made similar experiences and can communicate it to the patient if it helps him and he/she thus feels accepted and understood. But I stay independent of my patient. I do not need him/her. I let him/her stay traumatized as long as he/she “needs” it, as long as he/she has not yet found a way to a better sense in life. This requires a completely intact left hemispheric self-reference of the therapist.

This is why the therapist does not act out of a concordant counter transference with the trauma state of the Patient but contrasts it with his/her own body state of vagotone staying relaxed. By this he/she facilitates a vagotone and oxytocin dominated state in the patient via the input to the mirror neuron system of the patient. This is active emotional contagion, in this case contagion of the patient by the state of the therapist. It goes without saying that for this the therapist has to be present for the patient physically, has to be seen, heard, smelled, often even touched in order to give to the numbed or impaired mirror neuron system of the patient input and stimulate it to build a simulation of the relaxed state of the therapist.

2.4 The therapist as a good relational object

In trauma therapy the patient as experiencing subject needs a **correcting emotional experience** by means of the way the therapist handles the body of the Patient. Often the body of the patient is injured by other human beings. By the helpful and healing relation to the body of the patient frozen in shock, the therapist becomes a good relational object for the body in misery. Many patients never had the experience of his/her body being handled with care. The patient is experiencing realistically with his/her skin how the therapist handles physically the body of the patient. This experience is necessary for establishing a new quality of relationship of the patient to his/her own body. This is the base of a new background feeling. Using a psychoanalytic term this is how to develop a new “object relation representation”.

Joachim Bauer says: “Not only for building a concept about the world but although to define it self the infant brain has to relate to stored programs that describe **really experienced** sequences of action and interaction” (Bauer, 2005 p.65). Mirror neurons can mirror action sequences only when they originate in **living biological actors**. This has to happen on the concrete bodily level of reptile brain (lower limbic system, brain stem) and mesolimbic system (basal ganglia), not only symbolically (that is on the upper cortical limbic system), to

give the archetypal base for patterns that can be imagined and represented in the same gestalt on the higher level of cortex organisation. In doing body oriented trauma therapy, these real experiences are imparted via the body and the hands of the therapist.

For illustration I offer the protocol a patient wrote down after series of trauma therapeutic sessions. She is probably a “cuckoo in the nest” and suffered severe sexualized violence between the ages of one and a half to four years by her putative father (in the following description called “A.”). This patient managed to defend to a certain degree against the introjections of the perpetrator and by this develop a fairly stable ego structure. For this, the contact to her maternal grandfather turned out to be an important resource. So she is now able to understand the mechanism of threatening introjection and to verbalize it in our conversation:

“I feel movements in my body that I can not yet allocate or put in a sequence that makes sense to me, e. g. sometimes a sensation of balancing as if the ground below my feet moves, or the pain in my soles that twist my body when walking as if standing is painful, or dizziness or nausea.

By the last sessions I got a clear idea how my grandfather was important to me. When he took me with him in the woods, in nature I experienced such clarity in contact that I thought that he supposedly knew about not only my experiences of violence but about my descendance. I can still sense the importance of this clarity for me giving me orientation and space and although expressing myself. It is as if a new form of order is established and I experience how pressure is relieved. It is the pressure put on me by my family how I had to behave in the given role within my family and what I was allowed to speak. After my grandfather died (The patient was then three and a half years old) I started to be twisted because I could not find and could not sustain this clarity in contact any longer.

Your (therapist’s) hand on my thoracic spine feels like protection and the one at my chest bone as if you would directly reach far into the pain. This effects at first a pricking sensation going through the whole body. Then I can watch reflexes going on. At the same time it is as if this hand is giving orientation and effects in a kind of appeasement as if everything comes to an order.

I remember situations when A. roused me from sleep at night. While becoming awake I tried to keep my body against gravity. At the same time A. undressed me to nakedness. Coming out of the sleep state of deep relaxation where muscle tension is not yet available I am overwhelmed by perceiving what is going on within him. I sense his tension and his arousal

and I'm scared stiff. I feel his rage and ask for mom. I say: "I need my mom!" He answers:" She is with her lover (the probable natural father)!" At this point in therapy there are too many reactions at the same time so I lose orientation for a while and I can not go on talking.

I notice how I switch off over and over again for a short moment as if losing consciousness in the way I fainted in the past when memories of the violence situations come up in me. As these changes between noticing, sensing of my reactions to the violence, and this switching off happen in much shorter intervals than seconds I can not control or modulate them consciously.

Before these experiences (being roused from sleep) I allowed some kind of relatedness to me but after that I did not accept him any longer. I did not take him for full. I was overwhelmed with his emotions (via the mirror neuron system) and this was my decision to protect myself against it. I could not rebel openly because this would have been too dangerous for me. Thus it only was an inner decision. If I would have adapted to his demands to be good, quiet and submit and adapt to his emotions I would have been able to separate his and mine less and less and would have ended up in taking his emotions as mine. This would have grown to be very dangerous to my ego. Although I had a bad conscience about that, I knew, I had to do something against it.

It helped me that A's reactions were sudden, extreme and I could not anticipate how they would develop. Because this man often was so extremely unpredictable in his actions and reactions it turned out to be not that difficult for me to notice how I am different from him. But the empathy he asked for may have prevented just this kind of demarcation.

When I feel your (therapist's) hands at the thoracic spine and the chest bone the switching off because of the pain stops. I experience: I'm held in contact and you reach me. Although I feel the pain more intensely it seems like the automatic on and off of the ongoing painful memories and experiences is switched off. By the sensed contact mediated by your hands the automatic change is interrupted completely and by this the usual reaction pattern does not function any more.

I sense how I go in contact with my breathing with your hand on my chest bone as if the breath is starting to tell an unknown story, as if I breathe towards the contact. When doing so, a sense of expanding arises very slowly as if I would start to extend. This is an experience of becoming wide allowing me my space while I am in contact. I sense how I get back my own feeling and my own body. This is a treasure so worthy and precious that tears come. By directing my breathing towards the contact a body sensation of expansion comes up and, parallel to that change in the felt sense of the body, the ego expands. I start to understand that

I no longer see myself as pure object of the emotions of A. and of what he is doing to me. And then I feel that, with my ego, I oppose something which I had taken over from A.. I oppose this feeling to be seen as an object, his despising me and my mother, his rage about my existence because I represent a taboo (me being the daughter of another man), a symbol he can take it out on.

Experiencing the expansion it feels like me taking back my body and no longer seeing me with his eyes, seeing me from his perspective, being an object to him. My self starts demarcating from his violence, rage and hatred. This is possible because the contact you provide gives safety and space. I feel deep gratitude. It is good to experience that you (therapist) are able to bear what I am talking about and what I feel. It helps that you can let me start to cry until I can sense what I need. This holding and space help me to remember and get in touch with my feelings.

There is a certain kind of strain because that which I have taken over from A. is going to separate from my own. This happens also when you apply this technique of moving a part of my body. It is an astonishing experience to stay with me although I am in contact and - even more - to come back to me just by this contact. Then it is not necessary any longer to withdraw from contact in order to come back to me and be within me.

When I straighten up, the body sensation is changed so much that I need a lot of time to reorient in the room. It is as if I had much more space, as if I still develop more space and do not have to defend myself against this being overwhelmed by Al's emotions. It is a feeling of width as if the effort of adapting to A., to my role in the family system has come to an end all of a sudden. This widening and detaching from the adaptation is still going on like coming out of a very narrow preset structure. A symbolic image of this could be a negative plaster cast into which I was pressed because no other place, no other development was allowed within this preset family structure and because of Al's emotions and rage about my existence.

I feel a little bit insecure in this new experience of width and freedom. It is as if you have taken me out of this structure, out of the adjustment to this form."

2.5 The therapist as "container"

In psychoanalysis there is the metaphorical or psychic image of the therapist as "container" that contains intolerable emotions of the patient and "predigests" them, meaning that the therapist puts in words these unspeakable emotions. This should help the patient to

“understand” his state by “mentalizing” it psychically. Neurobiologically this is a function of the cortical level or organisation. In the viewpoint of the category of the third-person-aspect quoting Ken Wilber (2001) it is indeed a question whether the therapist allows a simulation of the state of the patient within his/her mirror neuron system to build up as a place where neuronal physical excitation occurs. In view of the two-persons-perspective of relation and interchange it can be helpful to point out by words to the patient to arouse the simulation (First-person-perspective) when it gives orientation to the Patient and a feeling of being understood. This feeling arises in the patient when the therapist manages to arouse a fairly fitting simulation of the state of the patient. Thus, a certain concordance in experiencing and understanding arises that is to say a sufficiently successful interchange. The patient feels mirrored and “seen” in this interchange.

Back to the image of container. There is no doubt that the therapist should not fuse with the content that is the mirrored state of the patient. This would lead at best to identity diffusion and sympathetic co suffering. For whom would it be good? The conscious therapeutic ego has to stay separated from the simulation and should not identify with the not me that is the patient. This is not only a question of respect for the individuality of the Patient. It is of great therapeutic importance because the therapist has to set a sovereign resource state beyond catastrophe against the trauma state of the patient. This resource state of the therapist is picked up by the mirror neuron system of the patient. It is automatically creating a simulation of the state of the therapist. This simulation gives a discrepancy experience to the own state and an alternative way to perceive the world. It often touched me how positively astonished and appreciating patients noticed during trauma confrontation: “You, the therapist, are staying so calm! You aren’t overwhelmed at all! How can you bear my trauma?” Such a reaction would not be possible if the patient did not go in resonance via his mirror neuron system with the positive state of therapist. The patient can do so only when fairly present and not dissociated. This often totally new information helps the patient to set something against his/her trauma state. This is what conveys to the Patient the possibility of safety, self power and competence that is in contrast to his/her trauma state.

I think what is looked upon about us as “authentic” is just this combination of being willing to get involved in the simulated feelings and at the same time stay as therapist; a person of his/her own who can stand the simulation or - on the psychic level - is able to empathize

2.6 counter transference issues

As already discussed, a shock state becomes chronic by lack of empathy of the persons to whom the patient relates most closely, mostly the parents. Then a relational environment is lacking that gives safeness, support and containment. Such an environment is a necessary condition for catharsis of the arousal neutralized and frozen in the shock state. Catharsis takes place in form of crying, weeping, sobbing, and trembling. The lack of empathy works out to be partly the effect of a **typical counter transference** to a human being in a shock state: This human being totally-overwhelmed with shock and horror touches our own unknown traumata and triggers our own shock reaction pattern consisting of emotional numbing. We can observe how a shock state can be induced within ourselves when we watch terrible news in television. When this happens three mutually-amplifying mechanisms effect each other:

1. The terrible situation confronts me with a problem. To solve the problem I am stimulated to recreate the scene in my imagination as completely as possible with all sensory modalities. This will work out only by projecting my imagination into the body. “How does it feel?” is the primary reaction. Only based on a sensed body image, I can create a mental image to be the base of a solution of the terrible situation. I can decide to act only when I have a body feeling about the anticipated outcome of the situation imagined (Damasio, 1997).
2. When watching other persons my empathic function is activated via my mirror neuron system and I tune in to the emotional and body state “intuitively” by my body imitating posture and tonus of this other person. In The case of trauma it is the shock state of the other person that then triggers own traumatic complexes that have not been worked through.
3. Now I won’t let it get to me. I will dissociate from my own emotional reaction by actively detaching. I will become as “cool” as the person in the shock state.

Therapists also show this counter transference reaction, mostly in two forms:

1. **Concordantly** go into a **shock state**, that is vicarious traumatization:

I myself react with a mild form of freezing response, hold my breath, search for solutions on a rational level instead of offering containment of the arousal, offering empathy and accompaniment. I myself lose my vitality and bio energy, I may even become dizzy and somehow “spaced out”. Empathy gets lost. This can easily happen to me as therapist when I tune in unconsciously to the shock state of the patient via my mirror neuron system or as a reaction to the evoked terrible images and fantasies. I am identifying with the victim as he/she is present in the simulation.

- ♦ Either I as therapist am made helpless, overwhelmed and overtaxed by the traumatic situation in the same way the patient is. But a frozen therapist can not vitalize a patient in a shock state.
- ♦ Or I accuse the perpetrator. This accusing the perpetrator is a more subtle form of being identified with the victim. In place of the victim I activate aggression against the perpetrator in order to vitalize my self to some extent. But by doing this I reinforce disastrously an attitude of being victim. This can be embedded in the character defence system as “victim identity” to amount to nothing more than passively accusing factual or putative perpetrators.

If I can notice all this it is a great help because then I am already at a distance to my own shock state and not identified completely with the simulation of the patient within me. When I move my body is not frozen stiff any more but I managed to get out a little. This means: I am somehow more “my self”. Verbalizing this feeling to the patient, I give him an example how to manage the horror.

2. **Complementary counter aggression** is the second form:

Most people will resist against the induced shock when encountering another person in a shock state. They resist against losing their vitality by activating fight or flight. They will not accept the helplessness that is the outstanding emotion in a trauma state. Then it is a form of self protection or survival instinct to start an emotional counter attack, because these emotions bring them back to life. But it is disastrous for patients in a shock state. They feel like being rejected and once more catapulted into not being understood, at least into being left alone. It would be a retraumatization, at least on the relational level. The therapist appears as if he/she is identified with the perpetrator.

There are three **sub-forms of complementary counter transference**. As therapist I can

1. **Play down complementarily** the fright, the horror and distress of the patient in order not to be overwhelmed and go into a shock state. This can be seen as intellectualising defence, defence by neutralisation or de-emotionalization on the base of dissociation. The base of this is **dissociation**, at least emotionally. I, as therapist, am already concordantly in a shock state and dissociate partly primarily, partly defensively against this by secondary dissociation.
2. **Complementarily** feel my self being the “**victim**” of the patient in reaction to the internalized perpetrator within the patient. This can go as far as denigrating and

blaming the victim or accusing the victim for contributory fault. By this I am easy on the perpetrator because I am not willing to bear the monstrosity of his/her crime. I identify unconsciously with the perpetrator in his attempt of denying or dissociating from how destructive and evil his/her act was. His/her wicked deed was not only destructive for the psyche of the victim but for his/her own empathic humanity.

3. **Complementarily like a “perpetrator”** force the patient by confrontation and flooding into re-experiencing the trauma in order to break his/her resistance against mastering his/her fears with the best intention of provoking and encouraging the “fighting spirit”, the “outrage” or the “rebellion” he/she did not show in the traumatic situation. But exactly these qualities are lacking or are not available because of the shock state.

The therapist is trained in his/her own body oriented self experience to perceive these **counter transference traps** by learning to know and resolving his/her own trauma complexes. For me it seems to be of outstanding importance that the therapist has experienced for him/her self heavy cathartic discharges without dissociation. Only by this can he/she admit his/her patient to cathartic discharging without being afraid and in deep trust for the healing capacity of the process.

When we mirror the disastrous experiences of our patients on every level we are challenged in our ability to stay vivid and empathic even if we have worked through our own traumatic experience in our self experience training. Then we are able to offer an alternative model to the patient via our bodily attitude and our resource state. This includes a positive object relation experience to be internalized in contrast to the internalized perpetrator inject that is the sub person 8 (see 1.2.2.). This requires a stable self-reference.

3. Mirror neurons and the development of self-reference by mindfulness

The mindfulness of the therapist doing trauma therapy

The essence of trauma therapy is contact with empathy. What heals is a human being treating a traumatized patient with kindness, respect, compassion, attentive friendliness, solidarity in distress and at the same time presence. This is the opposite of dissociation.

Social stress blocks the empathetic emotional contagion (Loren et al. 2015). This means: The empathy of the therapist is reduced if the therapist himself/herself gets into social stress while confronting the trauma of a patient because the therapist feels threatened by the patient – to be precise –by the trauma state of the patient.

How can the trauma therapist develop his/her ability for empathic contact and preserve it in the stress of trauma confrontation? Since every trauma confrontation evokes a (hopefully mild) trauma state in the patient, thus inducing a trauma state simulation in the mirror neuron system of the therapist. How can the therapist integrate compassion in his/her functional ego state of acting as a trauma therapist? He/she can do so in the ego state of mindfulness

3.1 The ego

He who has no ego is ill.

He who only has an ego is poor.

He who has an ego and moreover compassion is less poor.

Health is characterized by a functional every-day-ego with sub states of functioning adapted to meeting all requirements demanded. The person has at its disposal a persona - to use a Jungian term - with different functional states that can be put into action with flexibility. Everyday communication also serves to mutually assure the “ego”, to mutually exchange self definitions or - to use an expression of C. G. Jung (Jaffé, A. (1961/1987, S. 10) – to mutually assure the respective myth.

Traumatic situations confront with the existential possibility of annihilation of the ego by death or shattering (dissociation) of the coherent unity of experiencing, of the phenomenological self concept. This experience of “there is no ego any more (that functions in the normal way)” is something that has occurred to many patients but had not been overcome sufficiently, otherwise they would not need trauma therapy. We therapists are also confronted with the possibility that “there is no ego any more”. And this is not only an intellectual experiment far away from the core of our identity but mediated by the mirror neuron system directly present emotionally and bodily with the full impact of all feelings of dread and horror. This is even more moving and exaggerated to the extreme when we as therapists have unresolved trauma issues that get triggered.

Trauma therapy aims to restore and stabilize a functional every-day-ego in contrast to the often prevailing dysfunctional trauma states. There is also the demand of having a functional therapeutic ego state put on the trauma therapist. Has this therapeutic ego be connected

consciously to a transpersonal “matrix”, a transpersonal source of power, a source of vitality, an archetypical elemental background or essence of being? In eastern schools of medicine there is the implicit idea of a state of health characterized by the free floating of “energy” called *chi* (in Traditional Chinese Medicine TCM) or *prana* (in Indian *Ayurveda*). This “energy” implicates information about health and the capability of self maintaining a process of information flow and exchange called “energy flow”. I like to use as background for understanding a model of quantum physics developed by the disciple of Carl Friedrich v. Weizsäcker and professor of theoretical physics Thomas Görnitz and his wife Brigitte (2002). According to their model, we as living beings, are interconnected with a non-spatial, non-time quantum process that organizes our personal material form of appearance and experience partly on an individual, partly on an archetypical base of immaterial information matrix as long as we are alive (see about this in extenso Madert 2004a, b and 2007). Given a trauma state the space of possibilities of choice of this organizing process is restricted extremely to mere surviving. It is because of this that we as therapists urgently need to confront our own trauma states in our self experience process and work them through by allowing the catharsis of the blocked emotions with the help and support of our training analyst. Only when we have come in contact with the own vitality and created an alternative resource state out of this vitality. In other words: we have created a stable healthy organismic overall state including a psychic phenomenological self concept that stands confrontation with our own trauma states and these of our patients.

We have to take in account that a self concept comes out of a process of body awareness thus representing the quality of the momentarily given functional state that is context dependent. Which functional state is our “healthy” state, with which we feel vital, safe and creative? In which state do we feel widely open for the source of vitality or the essence of our being connected with our individual quantum information process that is going to materialize in the form of this our body at this time? Are we able to become creative and productive out of this state when we want to heal?

With my remarks on the mirror neuron system I pointed out: we need a stable self reference system that stands the feeling of helplessness and annihilation. We need an ongoing training in handling the thread of annihilation.

3.2.1. Mindfulness as functional state

In trauma therapy the phenomenological based model of conceptualising ego states has become quite common and turned out to be very helpful. As I already described, a person in a

triggered trauma state is locked in in a state typical for a post traumatic stress disorder: hyperarousal, shock, numbing, paralyzing, helplessness, panicking and dissociation. On this base the mind had take its judgements, stored it in memory and defined that as reality. Worse get, the traumatized mind has a limited and distorted view of what happened in the past and therefore a limited and distorted view of its current reality (tunnel vision).

In contrast, a resource state is characterized by the qualities of stability, safeness and creativity that are necessary for healing. In relation to the therapeutic ego, I name this functional state the “mindful attitude”. Mindfulness starts with the wilful focusing of the perception to sensing the own body (felt sense), to perceive the own thinking process and its conceptualizations.

In addition to focusing my own felt sense of “This is how I am” the functional state of “mindful attitude” is widened focusing on counter transference:

- ♦ what I am thinking about this patient sitting in front of me who offers this verbal and non verbal communication in all his/her complexity and me watching my fantasies about the patient’s experiences then and now when he is with me (third-person-perspective or perspective of the “objective observer”) ?
- ♦ and the simulation of the state of the patient conveyed by my mirror neuron system including all the thus evoked emotions and fantasies within me (the stranger within me)
- ♦ and the shared inter subjective space of relation that opens up for the patient new realms of experience and solutions and for me an intuitive access to the information the patient needs for his/her recovery. This information can be given by spoken words offering an understanding and re framing of his/her experience. This information also consists of stimulating his/her psychophysical system in a way that conveys safeness and access to resources and vitality on a bodily, emotional and atmospheric level (self healing capacity, archetypical healer).

The functional state of “mindful attitude” is characterized

- ♦ on the neuro-vegetative level: In EEG the high part of alpha-waves, partly theta-waves while doing non-representational Chinese and Japanese *ZEN*-meditation, the high part of gamma-waves while concentrated evocation of compassion imagination as done in the Tibetan way of compassion-aimed *Metta*-meditation, always showing up a high degree of synchronisation in EEG, in fMRT findings showing up a high grade of activation of the pre frontal cortex (Singer et al. 2008, S. 60 ff.);

- ♦ on the level of self conceptualisation: endeavour to mindfully observe processes of perceiving and thinking establishing a “you-perspective” (witnessing);
- ♦ on the level of body attitude: upright sitting and walking, lining up in the vertical body axis (vertical grounding) and orientation in space (horizontal grounding);
- ♦ on the level of relationship: focussing and orienting to interactional and self concept-related issues of consciousness.

3.2.2 Training of mindfulness and meditation

Mindfulness is of major importance in all mystical traditions all over the world. Mysticism is grounded on two columns: Clarity and compassion (*boddhicitta*). Depending on the tradition there is sometimes an emphasis on clarity as it is in *ZEN*, or more on the development of compassion as it is in *Metta*-meditation. All mystic traditions aim to extend spiritual and transpersonal experience beyond the persona and the shadow, beyond every-day-ego and beyond the personal unconscious, beyond the usual phenomenological self concept we are identified with that beyond the “ego”. The “ego” has to be “transcended”. The means for doing this is meditation.

Attersee (2014, S. 7) gives a definition of meditation within the context of *Vajrayana Buddhism* as: “being a disciplined mental process, the person is cultivating with the being acquainted with a chosen object; [...] an outer [...] or inner object as it is the own mind or the own personal identity. According to the *sutras* there are two principal ways of meditation: one that emphasizes the capability of stability and focussing of the mind, and an other that emphasizes the capability of analysing and differentiating. The first kind of meditation is absorption effecting in a quality of mental anchoring and calmness named resting in calmness, when the later named pervading insight leads to a deeper insight in the basic nature of the chosen object.” (translation by KM)

In the Buddhist perspective of mindfulness the term *smṛti* is context-dependant translated with mindfulness, awareness or recollection. In especially *smṛti* in the sense of developing awareness of the own state, of the subtle interconnection between action impulse, implemented action and resulting effects is looked upon as the result of extended training (l.c.). Via this awareness the meditator acquires a basic attitude of peacefulness and compassion. In contrast, the lay definition of the trivial use of mindfulness means focussing, not being distracted or staying concentrated on what is done at the moment. But this is only the beginning in training mindfulness.

Training mindfulness in a meditative way is characterized by

- ◆ No acting out, staying quiet
- ◆ No likes and dislikes, no judging
- ◆ No decision taking
- ◆ No reference to former experiences, that is openness to everything that comes up
- ◆ Openness to what comes into awareness in the here-and-now. This counteracts the restriction of a trauma state.
- ◆ Staying focused on sensory experiences. This implicates: “I exist!”
- ◆ Staying focused on the awareness of consciousness: to be aware of awareness, to be conscious of consciousness. Consciousness is knowingness: “I know that I exist, I am what I am, I am conscious”. This counteracts the threat of annihilation in a traumatic event.

In our context of therapy it is important to recognize that only enduring training makes us a mindful therapist. A handful of weekend workshops will not do. It is an assignment for life. The mindfulness asked for as attitude in trauma therapy is going to become a “second nature”, for the therapeutic ego maybe even the “first nature” or basic attitude towards life at all if it has to take effect.

The free floating attentiveness of the analyst realizes some aspects of this mindfulness as it is trained in Buddhism. It is essential for the analyst and the trauma therapist to stay in an attitude of not judging, of loving acceptance, empathy and abstinence of selfish expectations towards the patient (e. g. success in therapy, power, admiration, importance, social contact, sexual-erotic stimulation).

3.2.3. Mindfulness as means of fostering self reference

Why mindfulness in trauma therapy?

Generally speaking, Bruce et al. state, that mindfulness can be a means in training psychotherapists to relate better to their patients: „We posit that mindfulness is a means of self-attunement that increases ones ability to attune to others (in this case, patients) and that this interpersonal attunement ultimately helps patients achieve greater self-attunement that, in turn, fosters decreased symptom severity, greater well-being, and better interpersonal relationships.” (2010, p. 83).

Mindfulness builds up stability of the phenomenological self concept.

As far as I know, there is only one single study dealing with the effect of meditation on the development of self reference. Anders Attersee (2014) did a questionnaire based survey about the effectiveness of a „gradual cognitive training“, that is a graduated meditative training

aiming to the development of self reference using an attitude of introspection. By this she could not only replicate the already known effects of meditation as relaxation by the induction of a vagotone state and the decrease of chronic stress. She also found strong indication for an amelioration of self-reference and the development of self-related awareness.

The phenomenological self concept of most of the people is formatted to a great extend (90%? 99 %?) by the internalized object relation representations and only to a minor extend by the experience of “now-moments” described by Daniel Stern (1992).

Developmental psychologists, such as Winnicott, Stern and Sander watched mother-baby-interactions and then found phases that were relatively free of outer stimulation to the baby and free of apparent need for contact all of this supported by an atmosphere of secure attachment. “An “open space” opens up between mother and child offering a space for exploration widening the world of experience autonomously [...] Within this open space or play room free from the pressure of having to react to signals or messages of the mother, the baby can discover (in safety KM) its own personal life, because it is relaxed [...]. It is in this open space of relatedness that the baby can access his inner space and experience the (meaning creating KM) sense of autonomy and authorship of the own impulses of action both on the sensomotor and the affect level [...] It can do so because it can let go and is let go” (Vieregge, 2003 S. 46, translation by KM).

3.3.1. Training of mindfulness given the example of *ZEN*

A fundamental saying in *Zen* is: “die on your cushion!” At first: this is a *Koan*, not to be understood intellectually. Although the central statement of the *heart sutra* is not that more intelligible: “All five *Skandhas* are empty” (*Skandhas* constitute the personality). For me the “meditation advice” of the Christian mystic Johannes Tauler is fair more understandable: “Seek for nothing but pure simple sinking into the pure simple unknown nameless hidden good [...] Everything you should retain is nothing: nothing to know, nothing to detect, nothing to intend, nothing to search for, nothing to want to have.” (Tauler 1988, S.45, translation by KM). This has something to do with dying, at least with giving up and letting go every present self conceptualization.

Zen is the direct unconditional bodily experience of what is at the moment.

What is gained by this body oriented self experience? Being one with the now-moment is the essence of *Zen* and every spiritual doctrine that centres on mindfulness. To put it a little simpler: *Zen* widens the range of perception. This widening of the “field of vision” is a good metaphor, because it contrasts the tunnel vision of a trauma state.

The situation during a *Zen sesshin* (session) sets an example: surviving is cared for: you are getting your meals, it is warm enough, and you have shelter against bad weather and a place for sleeping. The social demands are reduced to the minimum. We stay quiet and therefore do not have to either maintain an image for other people by talking, or confirm mutually our myths about ourselves to each other. And then we sit during *Zazen*. Willigis Jaeger *Kyo-un Roshi* describes how doing *shikantaza* (looking into the bare existence) we first scan our body, then just focus on the powerful bare quiet presence without thoughts and wishes everything can fall into, everything can be contained in. We let everything be and allow ourselves just to be (Jaeger, 2003).

Stepping out of the one-person-perspective of being identified with the content of our intellectual thoughts I am creating a two-person-perspective within me. As “witness” of myself I watch myself thinking, feeling, sensing, moving and perceiving.

In the context of training mindfulness and self reference it is not the point of exceptional border crossing experiences of enlightenment, of realization of the nature of being (*Zen*), vision of God (Christian mysticism) , the “Self” (C. G. Jung) or however these highly subjective experiences may be conceptualized and verbalized. At least these are experiences reported by very few and rarely. These are no experiences of the every-day-state-of-mind looked upon in our cultural agreement as being “true” phenomena. Given this I am less interested in possible “aims” of meditative or mystic absorption as *Satori*, enlightenment, experience of the true nature of being, of God. Rather then, what is emphasized by Willigis Jaeger: “being on the way is doing something with us” (l.c. p.41; translation by KM). In the context of the therapist practising mindfulness the question is: What does the functional state of “mindful attitude” with us?

First of all: While doing non-representational meditative practise the mirror neuron system is not active because input is shut off on purpose. There is no other person to be focused on, therefore no simulation that is built up. By this only the phenomenological self concept is in focus how it is fed by self perception sensing how the own body is felt when there is no input from outside. This is setting up a reference experience of “That is me”. My witnessing consciousness is aware of this information, without judging. A non-judging attitude is trained. Doing meditation in a non judging attitude trains empathy because at first place it requires loving and accepting kindness with us, our bodily state, then with our phenomenological self concept and its history of making, with our thoughts, likes and dislikes and ideas that is our ego’s coming into being. We are going to develop compassion with everything that happens with us during meditation and with everything that comes up into our awareness out of the

unconscious. We develop compassion with us in our history. When letting go everything that has been and every body state and emotion that is in the here-and-now we become one with life and do not longer resist to what is. It is a principal attitude we train: Go for life, not avoiding catastrophe, especially not avoiding disagreeable counter transference feelings, not avoiding the simulation of the state of the patient in a trauma state: shock, paralysis, collapse, numbing, hyperarousal, panic, helplessness, finally: Not away from our own vulnerability, menace and mortality. We fight catastrophic thinking and feeling with our own direct state of uprightness, vitality and confidence.

3.3.2. Straightening up

The usual posture or bodily attitude in a trauma state is a posture of contraction in order to protect, a collapsed and slumped down posture of helplessness or an overstretched posture of fright with some similarity to Moro's reflex of newborns. All these postures and reflexes are phylogenetically anchored and can be observed many living beings, partly in even very primitive organisms like amoeba, mimosas, also in animals like sea anemones, snails and hedgehogs.

Likewise the straightening up in the longitudinal axis of the body in the orientation reaction is a phylogenetically old pattern. Flight animals orient towards signals of possible danger e. g. noise that could indicate a predatory animal. This can be well observed in marmots, gophers, squirrels, hares, that straighten up and take an attentive posture. An upright posture is incompatible with a trauma state apart from being a secondary compensation.

3.3.3. Embodiment of an upright posture

Embodiment means adopting a bodily posture by will in order to produce a wanted emotional state. This voluntary changing of the emotional state via the voluntary motor nervous system is, in the view point of neurophysiology, a top-down-regulation. The voluntary changing of a state by changing the posture is a principle well-known in bioenergetic analysis: You feel how you feel in your body. Or: you behave how you behave within the attitude of your body (limitations). E. g. a person in an upright posture with open arms is going to feel strong, open and lovable. A bent down person with a slumped down posture is going to feel depressed, little, weak, unimportant and helpless. The body posture determines the phenomenological self concept and vice versa. To put it in other words: the same phenomenon, the same fact is described differently depending on the category of perspective, but not that different as we use the same words describing in the different categories.

To guard against a possible misunderstanding: bioenergetic analysis is not limited to mere producing **voluntarily** another emotional state. But bioenergetic-psychosomatic analysis uses this phenomenon sometimes to set stimuli that can have effect on the patterns of the extra pyramidal involuntary motor and posture system of the basal ganglia and can be anchored by a perceptual process. I have developed a set of exercises with the spine to enhance the awareness of this process (Madert, 1996).

Voluntarily set postural stimuli can activate the body memory (implicit memory, see above) and - in terms of Wilhelm Reich – exemplify the character armour, enabling an access to conscious revision. This is character analysis working through the resistances against re-experiencing trauma, this is **resistance analysis**.

In contrast to this, behavior therapy recently uses embodiment as voluntary alteration method for modulating unwanted emotional states, e. g. in the Dialectic Behavioral Therapy of Marsha Linehan. Here the voluntary adoption in of a posture dialectically contrasting the unwanted momentary dysfunctional emotional state serves to have impact on and change voluntarily the emotional state (Linehan 1996). The special thrill about this is that Marsha Linehan is although a *Zen Roshi*, a *Zen* teacher with decades of training in producing voluntarily a meditative posture sitting in *Zazen* and walking in *Kinhin*.

Indeed straightening up and getting a feeling for the longitudinal body axis is embodied by upright sitting (as it is usual in *Zazen*, contemplation, non-representational meditation), meditative walking in awareness (*Kinhin*) and many other mindful meditative body exercises as *Aikido* or *Qigong*. In *Korindo-Aikido* according to *O-Sensei* Hirai Minoru, Maritain Injurious Sense and Gerard Hacker Sense (Maritain 2007) rotation about the upright longitudinal axis of the body is typical and style-forming. In *Zhong Yuan Qigong* according to Grand Master Xu Mintang (2004) the central exercise is that of standing like “Big Tree”.

3.3.4. Reference to therapy

Straightening up in the longitudinal axis is stimulated implicitly in EMDR and explicitly in the body oriented trauma therapy: eye movements alternating from one side to the other like looking to a pendulum implicit a rotation about a virtual longitudinal body axis and sometimes involve micro movements about this axis. Alternating acoustic signals cause us to prick up our ears like flight animals do when orienting and provoke a turn of the head about the longitudinal axis. Alternating tapping uses right-left-symmetries, stimulates the attentiveness and gives a spatial impression in order to orient in the here-and-now. Doing body oriented interventions in trauma therapy, I often stimulate the spine of the patient side

alternating with special techniques thus conveying a felt sense of the vertebral axis being the center of the upright stance. This is not embodiment of a straightening up executed by the voluntary nervous system (top-down). On the contrary, I wait to see what the system “may do with the information”. Is the interlaced quantum information matrix addressed that (re-) organizes healing? Is the system of the patient destabilized in the sense of synergetics (Madert 2007), in a way, that it can take via his/her mirror neuron system the information of my – the therapist’s – mirror neuron system that is the subtle upright posture of the patient I could sense already with my trained proprioception system? Is the patient able to use this process of tuning in to a constructive way in order to become aware of the own straightening up? All these are bottom-up processes starting in the extra pyramidal motor system of **involuntary** body posture. Given the gentleness and caution of these intervention combined with exploration and analysis of the somatopsychic experience while confronting trauma the in the “reptile brain” (basal ganglia) archetypically reshaped reactions are stimulated. They are invited to materialize and thus change bottom-up the self concept. The quality of this is quite unknown to many patients that is the quality of uprightness and the quality to be healed out from inward on the base of stimulated self-regulating forces.

3.4 Results and discussion

Usually, most people succeed in differentiating between “myself” and the state of the person opposite to me as it is simulated by the mirror neuron system. Doing psychotherapy with traumatized people can induce a trauma state in the therapist by medium of the mirror neuron system. This trauma state impairs on a neurobiological base the differentiation between myself and simulation, because the left hemispheric brain areas that are in charge become under perfused and therefore dysfunctional. By this, a flooding with traumatic material can occur and a traumatization and/or retraumatization also of the therapist.

This has consequences on the training of therapists in regard to their capacity of empathy and their mental hygiene. Such a training requires not only working through the own traumatic experiences and trauma states in self-experience. It also requires high attention to the differentiation of self reference, “That’s me”, in contrast to empathizing that is the awareness of the simulation of the state of the patient by means of the mirror neuron system of the therapist. Because of this, the self reference has to be strengthened. While being a part of the phenomenological self concept rooted in tangible body perception this differentiation can only be ensured by body oriented self experience. To maintain and strengthen the self-reference an

ongoing body oriented training of mindfulness has proved to be efficient (Anders Attersee 2014).

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